



SCIENCE *MEETS* TECHNOLOGY

BOOK OF ABSTRACTS

University of Natural Resources and Life Sciences
All Details at www.icc2019.icc.or.at



Published by ICC – International Association for Cereal Science and Technology

Marxergasse 2, 1030 Vienna, Austria

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19th ICC Conference 2019

“Science Meets Technology”

24 – 25 April 2019

Vienna, Austria

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P-2.3 INFLUENCE OF RAIN DURING HARVEST ON QUALITY TRAITS OF WHEAT

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In the past 50 years, climatic changes affects cropping systems across Europe. Generally, Pannonian basin is one of the most vulnerable area of Europe influenced by climate changes characterized by a relatively short growing season, winter frosts, occasional spring heats and frequent drought stresses at the end of grain filling period. Besides the temperature increase and precipitation decrease, high year-to-year weather variability represent additional threat to the high winter wheat production. Appearance of prolonged heavy-rainfall periods, especially during harvest, causing harvest delay, leading to significant grain yield losses. Moreover, heavy rain decrease wheat quality traits effects additional economic impact. Therefore the aim of this study was to estimate influence of high amount of precipitation during harvest on wheat quality traits. The field trial was arranged in split-split plot system with nitrogen fertilization and harvest date as main factors and variety as sub-plot factor. The trial was performed in three replications, with size of experimental plot of 5 m² (5m x 1m). Trial treatments included fertilization with four growing nitrogen in-use doses: 0, 50, 100 and 150 kg N ha⁻¹, six wheat cultivars and two date of harvest: 25th June 2018 and 13th July 2018 (106 mm of rain from 25th June). Six novel wheat cultivars: NS Todorka, NS Javorka, NS Petrija, NS Obala, NS Epoha and NS Mila were used as material. The average results of following quality parameters: content of sprouting kernels (SPK), Falling Number (FN) and test weight (TW) were present in the study. As result of heavy rainfall, the values of SPK significantly increased compared to first harvest date. There was significant difference in SPK between studied wheat cultivars in second harvest date; NS Todorka NS Petrija and NS Javorka (12.09, 8.50 and 6.49%, respectively) had lower values of SPK in comparison to the NS Obala, NS Epoha and NS Mila (53.81, 47.56 and 25.59%, respectively). Also, the FN values varied significantly across harvest date, opposite to the SPK values. Cultivars NS Todorka, NS Petrija and NS Javorka (82, 117 and 139 s, respectively) had increased values of FN than other three cultivars in second harvest date, indicating less changes of starch complex in grain under influence of the high rainfall. Heavy rain decreased TW values, since the second harvest resulted in significant TW changes. In average, TW decreased by 3.1 kg/hl between harvest dates. Since TW is mostly determined by influence of cultivar, each cultivar different responded to the influence of high rainfall. In conclusion, heavy rainfall led to the significant reduction of studied wheat quality traits. However, presence of significant genotypic variation indicate that several cultivars were less susceptible to the negative influence of increased precipitation during harvest.

Keywords:

Rainfall, wheat, harvest, quality traits